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10. Dr. A. P. Singh, Dean, I. K. G. Punjab Technical University , Jalandhar
11. Dr. D. K. Rai , Professor , IIIT , Noida
12. Dr. Udai Pratap Singh , Professor, KIIT, Bhubaneswar
13. Dr. O. P. Panday , Dean R & D  
Thapar University , Patiala

### Important Dates

Paper Submission Open	24 November 2017
Last Date of Paper Submission	07 December 2017
Notification	09 December 2017
Submission of Revised Manuscript	11 December 2017

### Registration Fee (Rs)

Industry Personnel	2500
Academician/ Researchers	1000
Internal Participants	500
Research Scholars / Student	500

All accepted papers will be published in the conference proceedings.

Research scholar/student need to produce Identity card at the registration counter.

Registration fee includes Lunch & Tea (on the day of the conference), conference kit and a copy of proceedings. No TA/DA will be given to participants and they have to arrange accommodation themselves.

### MODE OF PAYMENT

DD to be drawn in favour of Director, SBSSTC, Ferozepur, payable at Ferozepur, Punjab. Please write your full name and institute name on backside of DD.

### SUBMISSION OF PAPERS

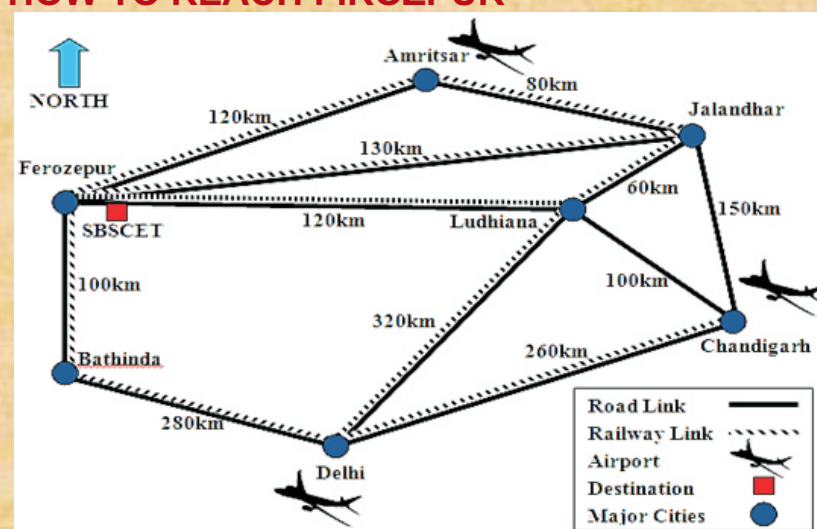
Researchers are requested to submit their full length papers in MS-Word format ([www.mrs.org/jmr-format/](http://www.mrs.org/jmr-format/)) as prescribed by Journal of Material Research through e-mail at the following address:

[sbsfmra2017@rediffmail.com](mailto:sbsfmra2017@rediffmail.com)

### MODE OF PRESENTATION

All the contributors are requested to specify the mode of presentation (Oral / Poster) for their papers. The oral presentation shall be for a maximum of 15 minutes. For poster presentation, a poster of size 3' X 2'6" must be prepared with standard configuration. The organizing Committee reserves the right of deciding the mode of presentation of a paper.

### HOW TO REACH FIROZPUR



## 4<sup>th</sup> NATIONAL CONFERENCE

on

# FRONTIERS IN MATERIALS RESEARCH & APPLICATIONS

(An Inter-disciplinary Conference)

**FMRA 2017  
(DECEMBER 21, 2017)**



## SHAHEED BHAGAT SINGH STATE TECHNICAL CAMPUS

Moga Road (NH-95),

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## ABOUT THE INSTITUTE

The Institute was established by the Government of Punjab in 1994 with the name "Shaheed Bhagat Singh College of Engineering & Technology" as a tribute to the great martyr Shaheed Bhagat Singh. It was upgraded to technical campus in 2011-12 and rechristened as Shaheed Bhagat Singh State Technical Campus. The institute is committed to induce quality and values in Engineering, Management and Science Education through its various UG, PG and Doctoral programmes. The Technical Campus, with its lush green state-of-the-art campus spread over 100 acres is situated on NH-95 (Moga Road), about three KM away from the Ferozepur Cantonment.



## CONFERENCE SCOPE AND TOPICS

The conference provides an interactive forum to discuss the advances in synthesis, characterization, properties, processing, applications, basic research trends and more, all related to the area of materials and manufacturing technology. The core mission of the event is to promote leading-edge research on materials. The conference offers a wide range of themes and topics of interest to the materials research community at large.

The registration form and copyright transfer form are available on the college website under the link FMRA2017. The submitted papers should be original and must not have been published anywhere. Following are the themes of conference:

### Materials and Manufacturing Engineering

- Advanced production materials
- Product design and manufacturing technology
- Material Process technology

### Condensed Matter and Material Physics

- Condensed matter and Material Science
- Nano-materials: Synthesis & Characterization
- Electronic Materials: Semi-conductors, Fuel cells, Advanced ceramics

### Chemistry of Materials

- Recent trends in synthesis
- Green & Asymmetric synthesis
- Analytical techniques for characterization of new molecules.

### Chemical Engineering Materials

- Catalysis and adsorption
- Polymers and polymer processing
- Novel processing techniques
- Transport phenomenon in processing

### Construction Materials and Technologies

- Advances in waste management
- Latest approaches in materials and methodologies for construction
- Latest materials for green buildings

### Modeling and Simulation

- Computational fluid dynamics
- Engineering optimization
- Nature inspired algorithms
- Modeling of material characteristics

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for  
**4<sup>th</sup> National Conference on  
“FRONTIERS IN MATERIALS RESEARCH & APPLICATIONS (FMRA-2017)”**  
December 21, 2017

Dear Sir/Madam,

Greetings for the Day!

It gives us immense pleasure to inform you that the SBSSTC, Ferozpur is organising **4<sup>th</sup> National Conference on “FRONTIERS IN MATERIALS RESEARCH & APPLICATIONS (FMRA-2017)”** on December 21, 2017. FMRA-2017 has been planned to provide a platform to professionals, academicians and research scholars across the disciplines of Applied Sciences, Engineering and Management to deliberate on various technological, managerial and techno-managerial advancements in Manufacturing Systems and their impact on the future course the research and development should take in this area. To cover-up the whole interdisciplinary spectrum of issues related to Manufacturing Systems, an indicative list of its topics includes advances in:

**Materials and Manufacturing Engineering** : Advanced production materials, Product design and manufacturing technology, Material Process technology.

**Condensed matter and Material Science**: Nano-materials: Synthesis & Characterization, Electronic Materials: Semi-conductors, Fuel cells, Advanced ceramics.

**Chemistry of Ceramics**: Recent trends in synthesis, Green & Asymmetric synthesis, Analytical techniques for characterization of new molecules.

**Chemical Engineering Materials**: Catalysis and adsorption, Polymers and polymer processing, Novel processing techniques, Transport phenomenon in processing.

**Construction Materials and Technologies**: Advances in waste management, Latest approaches in materials and methodologies for construction, Latest materials for green buildings.

**Modelling and Simulation**: Computational fluid dynamics, Engineering optimization, Nature inspired algorithms, Modeling of material characteristics

The conference brochure is attached herewith.

On behalf of the organising team, we request you to participate in the conference and make your contribution. I also request you to forward this to others in this research fraternity in and out of your organisation.

For more details please visit [www.sbsstc.ac.in](http://www.sbsstc.ac.in) or email to [sbsfmra2017@rediffmail.com](mailto:sbsfmra2017@rediffmail.com) .

With warm regards

Dr. Ajay Kumar  
HOD DASH

Er Parampreet Kaur  
HOD, CE

Dr Rajiv Arora  
HOD, CHE

Dr. T.S.Sidhu  
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**4<sup>th</sup> National Conference on  
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December 21, 2017

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**FRONTIERS IN MATERIALS RESEARCH & APPLICATIONS (FMRA-2017)”**

being held at **Shaheed Bhagat Singh State Technical Campus, Ferozepur, Punjab, India.**

I hereby declare that the material being presented by me is my original work, and does not contain or include material taken from other copyrighted sources. Wherever such material has been included, it has been clearly indicated and identified and due and proper acknowledgements are given at appropriate places. I also hereby authorize the organizers of the conference to include the work in the published (both print and electronic) form of the proceedings, if they so desire.

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# Paper Title\* (use style: *paper title*)

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**Abstract**—This electronic document is a “live” template and already defines the components of your paper [title, text, heads, etc.] in its style sheet. **\*CRITICAL: Do Not Use Symbols, Special Characters, or Math in Paper Title or Abstract.** (*Abstract*)

**Keywords**—*component; formatting; style; styling; insert (key words)*

### I. INTRODUCTION (*HEADING 1*)

This template, modified in MS Word 2007 and saved as a “Word 97-2003 Document” for the PC, provides authors with most of the formatting specifications needed for preparing electronic versions of their papers. All standard paper components have been specified for three reasons: (1) ease of use when formatting individual papers, (2) automatic compliance to electronic requirements that facilitate the concurrent or later production of electronic products, and (3) conformity of style throughout a conference proceedings. Margins, column widths, line spacing, and type styles are built-in; examples of the type styles are provided throughout this document and are identified in italic type, within parentheses, following the example. Some components, such as multi-leveled equations, graphics, and tables are not prescribed, although the various table text styles are provided. The formatter will need to create these components, incorporating the applicable criteria that follow.

### II. EASE OF USE

#### A. *Selecting a Template (Heading 2)*

First, confirm that you have the correct template for your paper size. This template has been tailored for output on the A4 paper size. If you are using US letter-sized paper, please close this file and download the file “MSW\_USltr\_format”.

#### B. *Maintaining the Integrity of the Specifications*

The template is used to format your paper and style the text. All margins, column widths, line spaces, and text fonts are prescribed; please do not alter them. You may note peculiarities. For example, the head margin in this template measures proportionately more than is customary. This measurement and others are deliberate, using specifications that anticipate your paper as one part of the entire proceedings,

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and not as an independent document. Please do not revise any of the current designations.

### III. PREPARE YOUR PAPER BEFORE STYLING

Before you begin to format your paper, first write and save the content as a separate text file. Keep your text and graphic files separate until after the text has been formatted and styled. Do not use hard tabs, and limit use of hard returns to only one return at the end of a paragraph. Do not add any kind of pagination anywhere in the paper. Do not number text heads—the template will do that for you.

Finally, complete content and organizational editing before formatting. Please take note of the following items when proofreading spelling and grammar:

#### A. *Abbreviations and Acronyms*

Define abbreviations and acronyms the first time they are used in the text, even after they have been defined in the abstract. Abbreviations such as IEEE, SI, MKS, CGS, sc, dc, and rms do not have to be defined. Do not use abbreviations in the title or heads unless they are unavoidable.

#### B. *Units*

- Use either SI (MKS) or CGS as primary units. (SI units are encouraged.) English units may be used as secondary units (in parentheses). An exception would be the use of English units as identifiers in trade, such as “3.5-inch disk drive.”
- Avoid combining SI and CGS units, such as current in amperes and magnetic field in oersteds. This often leads to confusion because equations do not balance dimensionally. If you must use mixed units, clearly state the units for each quantity that you use in an equation.
- Do not mix complete spellings and abbreviations of units: “Wb/m<sup>2</sup>” or “webers per square meter,” not “webers/m<sup>2</sup>.” Spell units when they appear in text: “...a few henries,” not “...a few H.”
- Use a zero before decimal points: “0.25,” not “.25.” Use “cm<sup>3</sup>,” not “cc.” (*bullet list*)

### C. Equations

The equations are an exception to the prescribed specifications of this template. You will need to determine whether or not your equation should be typed using either the Times New Roman or the Symbol font (please no other font). To create multileveled equations, it may be necessary to treat the equation as a graphic and insert it into the text after your paper is styled.

Number equations consecutively. Equation numbers, within parentheses, are to position flush right, as in (1), using a right tab stop. To make your equations more compact, you may use the solidus ( / ), the exp function, or appropriate exponents. Italicize Roman symbols for quantities and variables, but not Greek symbols. Use a long dash rather than a hyphen for a minus sign. Punctuate equations with commas or periods when they are part of a sentence, as in

$$a + b = \gamma \quad (1)$$

Note that the equation is centered using a center tab stop. Be sure that the symbols in your equation have been defined before or immediately following the equation. Use “(1),” not “Eq. (1)” or “equation (1),” except at the beginning of a sentence: “Equation (1) is ...”

### D. Some Common Mistakes

- The word “data” is plural, not singular.
- The subscript for the permeability of vacuum  $\infty_0$ , and other common scientific constants, is zero with subscript formatting, not a lowercase letter “o.”
- In American English, commas, semi-/colons, periods, question and exclamation marks are located within quotation marks only when a complete thought or name is cited, such as a title or full quotation. When quotation marks are used, instead of a bold or italic typeface, to highlight a word or phrase, punctuation should appear outside of the quotation marks. A parenthetical phrase or statement at the end of a sentence is punctuated outside of the closing parenthesis (like this). (A parenthetical sentence is punctuated within the parentheses.)
- A graph within a graph is an “inset,” not an “insert.” The word alternatively is preferred to the word “alternately” (unless you really mean something that alternates).
- Do not use the word “essentially” to mean “approximately” or “effectively.”
- In your paper title, if the words “that uses” can accurately replace the word using, capitalize the “u”; if not, keep using lower-cased.
- Be aware of the different meanings of the homophones “affect” and “effect,” “complement” and “compliment,” “discreet” and “discrete,” “principal” and “principle.”
- Do not confuse “imply” and “infer.”

- The prefix “non” is not a word; it should be joined to the word it modifies, usually without a hyphen.
- There is no period after the “et” in the Latin abbreviation “et al.”
- The abbreviation “i.e.” means “that is,” and the abbreviation “e.g.” means “for example.”

An excellent style manual for science writers is [7].

## IV. USING THE TEMPLATE

After the text edit has been completed, the paper is ready for the template. Duplicate the template file by using the Save As command, and use the naming convention prescribed by your conference for the name of your paper. In this newly created file, highlight all of the contents and import your prepared text file. You are now ready to style your paper; use the scroll down window on the left of the MS Word Formatting toolbar.  $\alpha + \beta = \chi$ . (1) (1)

### A. Authors and Affiliations

The template is designed so that author affiliations are not repeated each time for multiple authors of the same affiliation. Please keep your affiliations as succinct as possible (for example, do not differentiate among departments of the same organization). This template was designed for two affiliations.

1) *For author/s of only one affiliation (Heading 3):* To change the default, adjust the template as follows.

a) *Selection (Heading 4):* Highlight all author and affiliation lines.

b) *Change number of columns:* Select the Columns icon from the MS Word Standard toolbar and then select “1 Column” from the selection palette.

c) *Deletion:* Delete the author and affiliation lines for the second affiliation.

2) *For author/s of more than two affiliations:* To change the default, adjust the template as follows.

a) *Selection:* Highlight all author and affiliation lines.

b) *Change number of columns:* Select the “Columns” icon from the MS Word Standard toolbar and then select “1 Column” from the selection palette.

c) Highlight author and affiliation lines of affiliation 1 and copy this selection.

d) *Formatting:* Insert one hard return immediately after the last character of the last affiliation line. Then paste down the copy of affiliation 1. Repeat as necessary for each additional affiliation.

e) *Reassign number of columns:* Place your cursor to the right of the last character of the last affiliation line of an even numbered affiliation (e.g., if there are five affiliations, place your cursor at end of fourth affiliation). Drag the cursor up to highlight all of the above author and affiliation lines. Go to Column icon and select “2 Columns”. If you have an odd

number of affiliations, the final affiliation will be centered on the page; all previous will be in two columns.

### B. Identify the Headings

Headings, or heads, are organizational devices that guide the reader through your paper. There are two types: component heads and text heads.

Component heads identify the different components of your paper and are not topically subordinate to each other. Examples include ACKNOWLEDGMENTS and REFERENCES, and for these, the correct style to use is “Heading 5.” Use “figure caption” for your Figure captions, and “table head” for your table title. Run-in heads, such as “Abstract,” will require you to apply a style (in this case, italic) in addition to the style provided by the drop down menu to differentiate the head from the text.

Text heads organize the topics on a relational, hierarchical basis. For example, the paper title is the primary text head because all subsequent material relates and elaborates on this one topic. If there are two or more sub-topics, the next level head (uppercase Roman numerals) should be used and, conversely, if there are not at least two sub-topics, then no subheads should be introduced. Styles named “Heading 1,” “Heading 2,” “Heading 3,” and “Heading 4” are prescribed.

### C. Figures and Tables

1) *Positioning Figures and Tables: Place figures and tables at the top and bottom of columns. Avoid placing them in the middle of columns. Large figures and tables may span across both columns. Figure captions should be below the figures; table heads should appear above the tables. Insert figures and tables after they are cited in the text. Use the abbreviation “Fig. 1,” even at the beginning of a sentence.*

TABLE I. TABLE STYLES

Table Head	Table Column Head		
	Table column subhead	Subhead	Subhead
copy	More table copy <sup>a</sup>		

Sample of a Table footnote. (Table footnote)

We suggest that you use a text box to insert a graphic (which is ideally a 300 dpi resolution TIFF or EPS file with all fonts embedded) because this method is somewhat more stable than directly inserting a picture.

To have non-visible rules on your frame, use the MSWord “Format” pull-down menu, select Text Box > Colors and Lines to choose No Fill and No Line.

Fig. 1. Example of a figure caption. (figure caption)

Figure Labels: Use 8 point Times New Roman for Figure labels. Use words rather than symbols or abbreviations when writing Figure axis labels to avoid confusing the reader. As an

example, write the quantity “Magnetization,” or “Magnetization, M,” not just “M.” If including units in the label, present them within parentheses. Do not label axes only with units. In the example, write “Magnetization (A/m)” or “Magnetization (A ( m(1),” not just “A/m.” Do not label axes with a ratio of quantities and units. For example, write “Temperature (K),” not “Temperature/K.”

### ACKNOWLEDGMENT (Heading 5)

The preferred spelling of the word “acknowledgment” in America is without an “e” after the “g.” Avoid the stilted expression “one of us (R. B. G.) thanks ...”. Instead, try “R. B. G. thanks...”. Put sponsor acknowledgments in the unnumbered footnote on the first page.

### REFERENCES

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Number footnotes separately in superscripts. Place the actual footnote at the bottom of the column in which it was cited. Do not put footnotes in the reference list. Use letters for table footnotes.

Unless there are six authors or more give all authors’ names; do not use “et al.” Papers that have not been published, even if they have been submitted for publication, should be cited as “unpublished” [4]. Papers that have been accepted for publication should be cited as “in press” [5]. Capitalize only the first word in a paper title, except for proper nouns and element symbols.

For papers published in translation journals, please give the English citation first, followed by the original foreign-language citation [6].

- [1] G. Eason, B. Noble, and I.N. Sneddon, “On certain integrals of Lipschitz-Hankel type involving products of Bessel functions,” *Phil. Trans. Roy. Soc. London*, vol. A247, pp. 529-551, April 1955. (references)
- [2] J. Clerk Maxwell, *A Treatise on Electricity and Magnetism*, 3rd ed., vol. 2. Oxford: Clarendon, 1892, pp.68-73.
- [3] I.S. Jacobs and C.P. Bean, “Fine particles, thin films and exchange anisotropy,” in *Magnetism*, vol. III, G.T. Rado and H. Suhl, Eds. New York: Academic, 1963, pp. 271-350.
- [4] K. Elissa, “Title of paper if known,” unpublished.
- [5] R. Nicole, “Title of paper with only first word capitalized,” *J. Name Stand. Abbrev.*, in press.
- [6] Y. Yorozu, M. Hirano, K. Oka, and Y. Tagawa, “Electron spectroscopy studies on magneto-optical media and plastic substrate interface,” *IEEE Transl. J. Magn. Japan*, vol. 2, pp. 740-741, August 1987 [Digests 9th Annual Conf. Magnetism Japan, p. 301, 1982].
- [7] M. Young, *The Technical Writer’s Handbook*. Mill Valley, CA: University Science, 1989.

**4<sup>th</sup> National Conference on  
FRONTIERS IN MATERIALS RESEARCH & APPLICATIONS  
(FMRA-2017)"**

December 21, 2017

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**IMPORTANT INSTRUCTIONS TO AUTHORS**

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5. Student Authors need to fill student declaration form to take benefit of less fee.
6. As the formatted papers need to be sent to the publisher for publishing of proceedings by 8<sup>th</sup> December 2017, please ensure to complete all your formalities before 07<sup>th</sup> December, 2017.
7. The decision of Technical Committee will be final regarding acceptance of papers for including in proceedings.
8. Only those papers will be included in proceedings for which registration fee is received before 07<sup>th</sup> December, 2017.
9. Proceedings and Conference kit will be provided to all the registered authors.
10. Address for Sending Registration form with Demand Draft :

**Er. Parampreet Kaur**  
**FMRA-2017**  
**Deptt. of Civil Engineering**  
**Shaheed Bhagat Singh State Technical Campus,**  
**NH-95, Ferozepur-Moga Road**  
**Ferozepur-152004**  
**Punjab, INDIA**

11. For any further queries Contact on: 9878720615, 7888812165 or email at **[sbsfmra2017@rediffmail.com](mailto:sbsfmra2017@rediffmail.com)**

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